FIELD OBSERVATIONS OF ARCTIC SEA ICE

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ABSTRACT

The Environment Satellite (ENVISAT) is planned for launch in October 2001 by the European Space Agency (ESA) carrying a new advanced Synthetic Aperture Radar (SAR) operating at C-band frequency with a multiple polarization capability. Also, the QuikSCAT satellite, launched by NASA in June 1999, currently carries the SeaWinds scatterometer operated at Ku-band frequency with both horizontal and vertical polarizations. ENVISAT and QuikSCAT data will be used by the Naval Ice Center (NAVICECEN) for sea ice mapping. The objective is to carry out a field validation experiment to verify sea ice mapping results derived from the satellite data. For this purpose, the Jet Propulsion Laboratory will collect shipborne scatterometer data for various ice types. The United States Coast Guard (USCG) Healy ship is planned for deployment from Tromso, Norway, on a field experiment during the period October-November 2001 in the Barents sea. The Healy ship is an Arctic-class icebreaker with the capability to cut through sea ice. JPL currently has two shipborne polarimetric scatterometer systems: (a) a C-band system, and (b) a Ku-band system. Both scatterometer systems were designed to operate in cold conditions. The scatterometers are on board the USCG Healy for sea ice measurements. Report on preliminary results of scatterometer backscatter of different ice types and in-situ sea ice properties will be presented at the International Ice Charting Working Group Meeting in Tromso, Norway in November 2001.